THE DOUBLE REVERSAL OF FERTILITY

Status, space and beliefs after the demographic transition

A structured synthesis of the evidence and a research agenda on the reproductive stratification of modernity

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Abstract

The history of the relationship between social status and fertility does not appear to follow a stable rule. Before the demographic transition, wealth, social position and access to resources were often associated with more numerous offspring. During the transition, elites reduced fertility earlier, and for much of the twentieth century a negative relationship between income, education and number of children became established. In recent decades, however, several of these regularities have weakened or reversed again. Among rich countries, the correlation between income and fertility has become positive; within some countries, higher incomes are increasingly associated with the transition to parenthood; and highly educated women no longer necessarily display the high childlessness that characterized earlier cohorts. At the same time, ultra-low fertility has spread from Europe and East Asia to middle-income countries and, according to Fernández-Villaverde and Norrick (2026), national trends are negative in the overwhelming majority of countries analyzed.

This paper proposes interpreting these facts jointly through the idea of a double reversal of the status gradient and a three-dimensional framework: resources, space and beliefs. Income may once again facilitate reproduction when modernity turns family formation into an activity intensive in housing, time, services and stability. Residential space and urban form may amplify this process: the available evidence associates single-family housing, access to housing and lower urban congestion with higher fertility, although causality varies by study and parity. Finally, religiosity, family values and other beliefs about continuity may sustain high reproductive preferences even in rich and dense societies, with Israel as a particularly relevant case. From this synthesis, the paper formulates an original hypothesis: the positive gradient between income and fertility should be stronger the greater the degree of urban residential compression. The article explicitly distinguishes robust findings, suggestive evidence and hypotheses that remain untested, and proposes an empirical design for the United States using ACS/PUMS, vital statistics and values surveys.

Keywords: fertility; demographic transition; social status; income; housing; density; urbanization; religiosity; conservatism; modernity; ultra-low fertility; reproductive inequality; demographic sustainability.

Central thesis: modernity does not eliminate the relationship between resources and reproduction; it transforms it. When having children requires purchasing space, time, services and security, resources may once again raise fertility. That relationship should become stronger in dense and expensive urban environments, while family or religious beliefs may modify or even counteract the material effect.

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1. Introduction: from the demographic transition to reproductive stratification

For much of the twentieth century, a relatively simple story was taught. Poor, agrarian societies had many children; development reduced mortality, urbanized the economy, increased education and lowered fertility; finally, rich societies converged toward a regime of low mortality and moderate fertility. That narrative still describes an essential part of the demographic transition, but it is no longer sufficient to explain the present.

The first anomaly is historical: the negative relationship between wealth and fertility was not a human constant. The evidence compiled by Skirbekk (2008) shows that before the modern fertility decline began, higher-status groups often had more descendants than lower-status groups. The second anomaly is contemporary: in several rich countries, the negative relationship between income and fertility has flattened or become positive, while some of the fastest fertility declines are now observed in middle-income countries and among lower-resource groups. The third anomaly is spatial: equally rich societies display radically different demographic outcomes, and within countries persistent gradients remain between rural, suburban and metropolitan areas.

These three anomalies suggest that there is no monotonic and universal function of the form "more development = fewer children." Development changes the costs, benefits and material conditions of reproduction, but those transformations depend on the historical phase, urban organization, family structure, housing and care markets, and beliefs about family, descent and continuity.

The aim of this paper is to reconstruct these trends and propose a synthesis. The thesis is that we may be entering a third historical configuration. In it, having children ceases to be a behavior associated with lower status and increasingly requires a combination of economic resources, residential space and sufficiently strong preferences for family continuity. In some environments, even having a first child may require a substantial material base; having three or four may become behavior accessible mainly to households able to purchase housing, time and services. This does not mean that children are already universally a "luxury good," still less a "status good" in the strict economic sense. It means that the hypothesis deserves to be decomposed into components and tested.

The original contribution is concentrated in two ideas. First, the double status reversal should be analyzed together with residential geography: the new positive income-fertility gradient may partly be a gradient in the capacity to purchase family space. Second, that gradient should be larger in dense and expensive cities than in rural or spatially decompressed territories. We call this second proposition the urban amplification hypothesis of the income-fertility gradient.

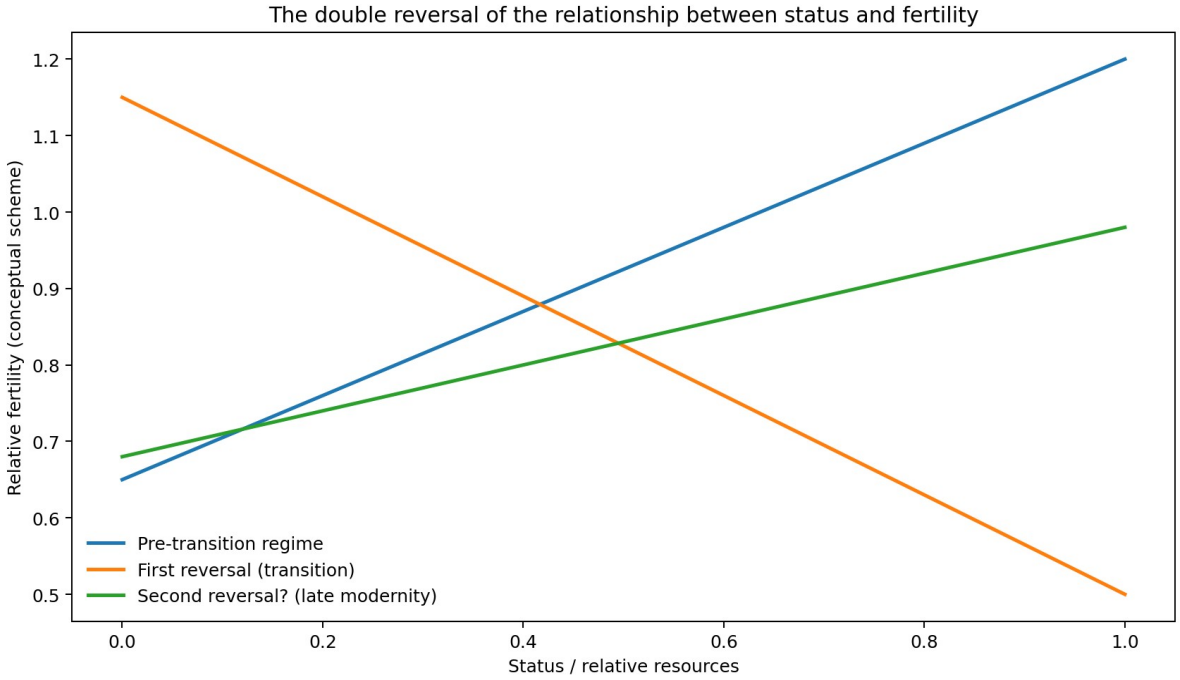

Figure 1. Conceptual scheme of the double reversal. It does not represent a single empirical estimate; it summarizes three historical regimes documented by the literature with different degrees of intensity.

2. Method: structured synthesis, not a statistical meta-analysis

This article is a structured review of evidence and a conceptual synthesis. It is not a statistical meta-analysis in the strict sense. The available studies use mutually incompatible outcomes - TFR, completed fertility, birth in the previous twelve months, probability of a first birth, number of children, childlessness - as well as different geographic scales and designs ranging from historical reconstructions to administrative registers, surveys and natural experiments. Combining those coefficients into a single effect size would create an appearance of precision that would be difficult to justify.

The strategy is therefore similar to a scoping review: identify regularities, separate types of evidence, evaluate mechanisms and construct hypotheses that can later be subjected to homogeneous tests. Greater weight is given to studies using administrative registers, longitudinal data, natural experiments or designs that explicitly address residential selection and endogeneity. Purely descriptive studies are used to establish stylized facts, not causality.

To organize the literature, four categories of evidence are used:

- A - Robust or widely replicated: patterns observed across multiple countries or sources and compatible with causal or longitudinal studies.
- B - Suggestive: a consistent association with plausible mechanisms, but sensitive to context or affected by selection/endogeneity problems.
- C - Open hypothesis: a proposition compatible with the available evidence but not directly tested.

- D - Normative or philosophical concept: useful for interpreting the phenomenon, but not a technical demographic category.

The distinction is fundamental. The goal is not to turn plausible intuitions into “facts” through rhetorical accumulation, but precisely to show where the evidence ends and the research agenda begins.

3. The first relationship: high status and high fertility before the transition

One advantage of looking across several centuries is that it dispels the impression that the modern relationship between poverty and large families is anthropologically necessary. Drawing on 879 historical samples, Skirbekk (2008) concludes that before the fertility decline, high status was often associated with higher fertility. In Florence in 1427, for example, women aged 30-34 in the poorest group had on average around three children, compared with higher figures among middle- and high-status groups. Studies of Italian and French cities show similar patterns.

The material explanation is intuitive. In agrarian or preindustrial economies, wealth and position could facilitate early marriage, household formation, access to land and food, and child survival. Status could also increase male marital success and reduce some biological constraints associated with deprivation and mortality. In this regime, children contributed to the household economy and to patrimonial and family continuity.

The observation does not imply that all elites in all periods had more children, nor that education operated in the same way as wealth. Skirbekk emphasizes that the negative effect of education on fertility appears persistently once comparable twentieth-century data become available. “Status” is a composite variable: income, wealth, occupation, rank, education and power may have different effects.

This is precisely why it is useful to speak of historical regimes rather than a universal law. The first positive relationship did not disappear because wealth changed some metaphysical sign, but because the technology of social reproduction changed: mortality, contraception, children’s education, urbanization, female employment, housing and consumption expectations.

4. First reversal: when elites began to have fewer children

The demographic transition transformed that relationship. In many societies, upper and urban classes limited fertility earlier. In Rouen, for example, upper classes began their decline before artisans and workers, eventually reversing the gradient observed a century earlier. In the long-run United States, Jones and Tertilt (2008) document a complex history of the relationship between fertility, income and education for cohorts of women born between 1826 and 1960.

The mechanisms are multiple and compatible. Elites had earlier access to contraceptive information and deliberate limitation practices; education raised the opportunity cost of

women's time; industrialization reduced the productive utility of children; and the Becker-Lewis quantity-quality model made it more costly to increase simultaneously the number of children and educational investment per child. Child mortality declined, so large numbers of births were no longer necessary to obtain surviving descendants.

For much of the twentieth century, this reversal became one of the canonical regularities in the economics of the family: higher-income households or more educated women tended to have fewer children. The social image of the large family changed with it. What in historical regimes could signal material capacity or position came, in many developed societies, to be associated with lower education, less reproductive control, early motherhood and poverty.

Yet turning the regularity of one historical phase into a permanent law was risky. Doepke, Hannusch, Kindermann and Tertilt (2023) argue that the economics of fertility has entered a "new era" precisely because two classic correlations - income-fertility and female labor-force participation-fertility - ceased to behave as before in high-income countries.

5. From the second demographic transition to the global decline

The second demographic transition added a new problem: fertility did not stop around replacement. Since the late twentieth century, numerous European and East Asian countries have fallen far below 2.1 children per woman. The concept of lowest-low fertility became established for levels below 1.3. In 2024, the European Union recorded a TFR of 1.34, according to Eurostat, and the United States reached a historical low of approximately 1.60, according to the National Vital Statistics System.

The most disruptive development is that ultra-low fertility no longer appears to be a phenomenon exclusive to rich Western societies. Fernández-Villaverde and Norrick (2026) assemble recent evidence from Mexico, Tunisia, Thailand, Colombia, Iran and Brazil, among others, and estimate a model for 236 countries and territories. In their specification, 219 national trends are negative and they find no general leveling-off within the sample. Their most provocative claim is not merely that world fertility is approaching or may already have crossed replacement, but that the recent decline is unexpectedly concentrated in low- and middle-income countries and among groups with lower income and education.

This pattern weakens an explanation based purely on income level. The authors cautiously propose a "modernity conjecture": large organizations, formal credentials, intensive education, rigid careers, weakened kin networks and changing gender roles may make the third child expensive and childlessness relatively cheap, even before Western income levels are reached. Modernity, rather than wealth itself, would be the common denominator.

The point is crucial for this paper. If development no longer orders countries along a single scale of "poor with many children / rich with few," we must analyze which dimensions of modernity generate variation among equally developed societies. Urban and residential form, the distribution of resources and the persistence of family beliefs then emerge as candidate variables.

5.1. Historical waves and changes in the sign of the fertility-income relationship

It is useful to add here a more explicitly historical and cross-country perspective. The literature on social classes and within-country differences is fundamental, but it risks obscuring another large-scale transformation: the international diffusion of the low-fertility regime did not occur all at once or uniformly. Its historical geography helps explain why the link between fertility and income has changed both in sign and in scale.

The first major decline should not be narrated simply as a mechanical consequence of English industrialization. France is a decisive anomaly because of its precocity: its fertility began to decline relatively early, before reproducing the British industrial pattern. Later, during the nineteenth and early twentieth centuries, England and Wales, Belgium, the Netherlands, Germany and Scandinavia progressively entered the transition. Still later, the low-fertility regime generalized across southern and eastern Europe and, during the twentieth century, also became consolidated in societies of European settlement.

The next wave was even more instructive. Japan underwent a very rapid transition after the war; subsequently, South Korea, Taiwan, Hong Kong and Singapore not only reached low levels but became laboratories of ultra-low fertility. In recent decades, the phenomenon has spread with remarkable speed to Latin America, the Middle East and various middle-income economies. This suggests that each later wave requires less time - and perhaps less income per capita - to cross thresholds that took Western Europe much longer.

In other words, the international history of fertility does not show a simple sequence of “poor with many children / rich with few children.” It shows, rather, a diffusion of reproductive control, smaller family size and, ultimately, sub-replacement fertility. This is why it is useful to summarize conceptually the historical evolution of the correlation between fertility and income. The following figure is not a single empirical estimate; it schematically summarizes the historical trajectory that seems to emerge from the comparative literature.

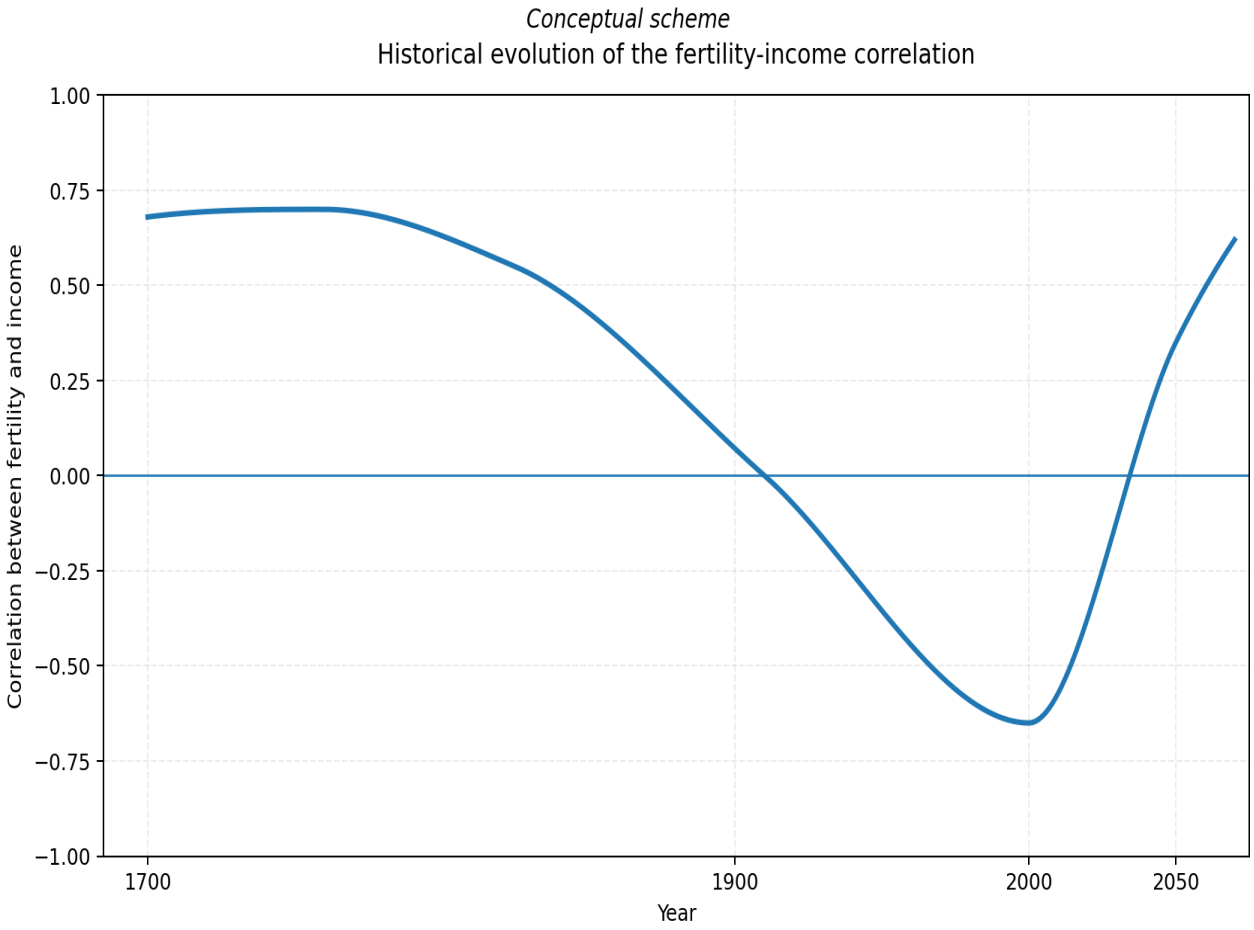

Figure 2. Historical evolution of the fertility-income correlation. Conceptual scheme: positive in pre-transition regimes, negative through much of the demographic transition and classical demographic modernity, and potentially positive again in some advanced societies in the twenty-first century. It does not represent a single empirical estimate.

The proposed curve summarizes three historical regimes. In a first phase, characteristic of broad segments of the pre-transition world, the correlation between income and fertility would tend to be positive: groups with more resources could sustain more descendants, and having many children did not necessarily denote low status. In a second phase, corresponding to the demographic transition and much of the twentieth century, the correlation becomes negative: elites and then groups with higher education and income move earlier toward voluntary fertility limitation. Finally, in a third phase that remains incomplete and heterogeneous, the relationship appears to flatten and even become positive again in certain countries and subpopulations of advanced societies.

This figure also helps separate two questions that are often conflated. The first is historical and geographic: how the low-fertility regime diffused across countries, from European pioneers to accelerated transitions in East Asia, Latin America and other regions. The second concerns stratification within countries: once sub-replacement fertility becomes widespread, who retains

the greatest capacity or willingness to have children? The next section addresses precisely this second question.

The previous synthesis can be made more concrete by examining stylized national trajectories over time in addition to the conceptual correlation curve. The following figure does not claim to provide an exhaustive database or an exact year-by-year reconstruction; rather, it approximately summarizes representative countries from different waves of transition, making visible how the decline began earlier in some European pioneers, later accelerated in East Asia, and subsequently reached middle-income economies, while several African societies remain at relatively higher stages.

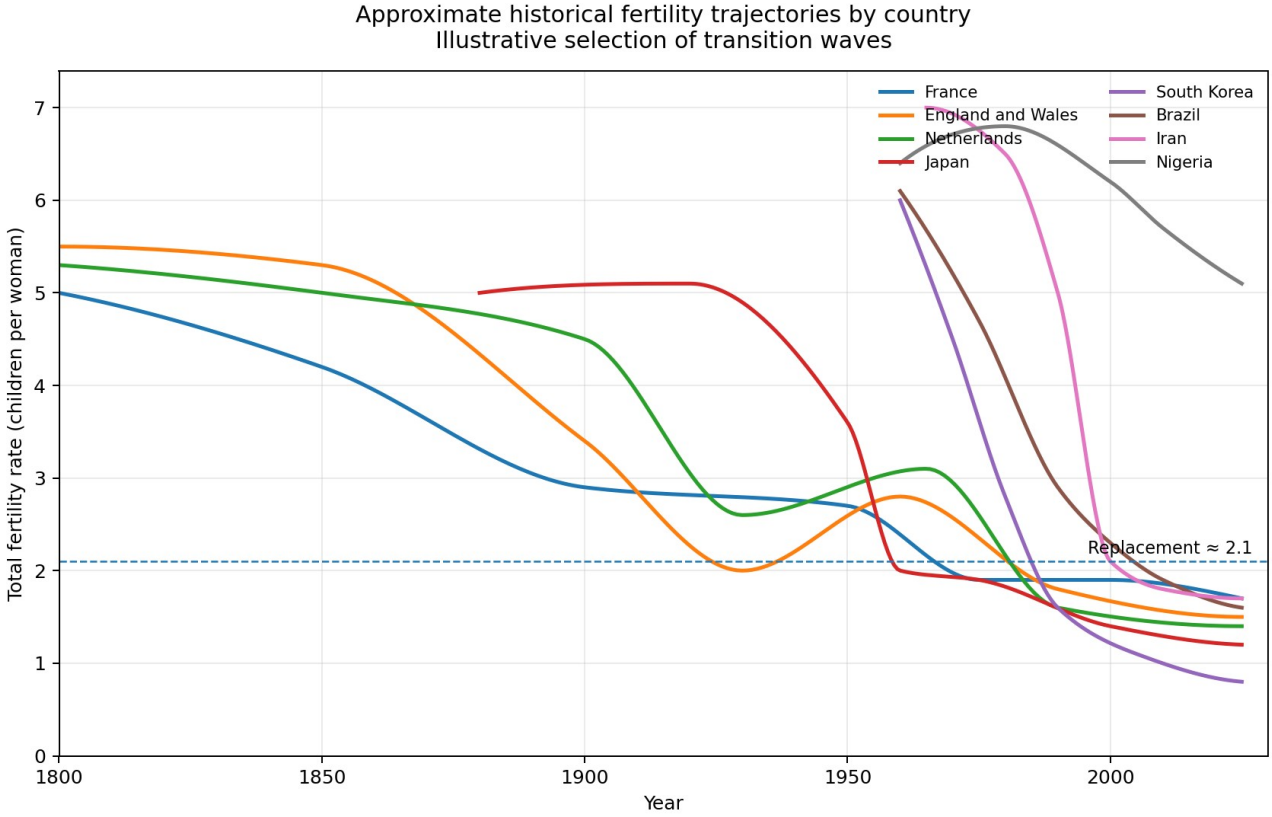

Figure 3. Approximate historical fertility trajectories by country. Illustrative selection of transition waves (France, England and Wales, the Netherlands, Japan, South Korea, Brazil, Iran and Nigeria). Author's own schematic elaboration based on patterns widely documented in the literature; it is not equivalent to an official harmonized series.

The graph makes several points visible at once. First, fertility decline was not simultaneous: France and other European countries began the decline much earlier; Japan followed later; and South Korea, Iran and Brazil compressed into a few decades what took Europe much longer. Second, sub-replacement fertility does not necessarily stop around 2.1: several cases continue to decline after crossing that threshold. Third, the contrast with Nigeria helps show that global history remains uneven: not all regions have completed the transition, but the overall direction of movement is clearly downward.

Read together with the previous conceptual figure, this panel reinforces the central idea of the subsection: the issue is not only which groups have more children within each society, but also how successive waves of countries have entered the same logic of shrinking family size. The question of the second reversal arises precisely when that logic has become almost universal and what varies is who retains relatively higher fertility within late modernity.

6. A second reversal? Income, education and fertility in late modernity

The hypothesis of a second status reversal does not claim that the positive relationship between income and fertility is already universal. It makes a more precise claim: after the first reversal, the negative gradient has weakened and, in certain contexts, changed sign.

Bar et al. (2018) show that in the United States the negative relationship between income and fertility flattened between 1980 and 2010 because high-income families increased their fertility. Their mechanism is the marketization of parental time: rich households can purchase childcare and domestic services, converting part of the time cost of children into a monetary cost they can afford. Income inequality may, paradoxically, make those services cheaper relative to the wages of high-income households.

Hazan, Weiss and Zoabi (2023) provide a complementary piece. Highly educated women were more likely to remain childless in the United States in 1990; in later cohorts, that difference narrowed until it converged with other education levels. The authors again point to the ability to purchase substitutes for household time as a mechanism that makes career and family more compatible.

Recent Dutch evidence is especially clear. Van Wijk (2024), using population-wide registers from 2008 to 2022, finds that income is increasingly positively associated with fertility for both men and women. However, the result is driven by first births; for higher-order births, the effect is much smaller. This qualification is decisive. The second reversal may begin not because the rich have four children, but because low-income households increasingly find it difficult to enter parenthood at all.

This suggests two distinct processes. At the extensive margin, insufficient resources may prevent or delay the first child. At the intensive margin, space, preferences and marginal costs determine transitions from one to two, two to three, and so on. A paper that mixes both margins may confuse different mechanisms.

Nor should the positive income relationship automatically be interpreted as causal. High income correlates with stable partnership, health, education, housing and selection. Yet natural experiments point in the same direction: positive wealth shocks from lotteries in Taiwan increase fertility, mainly by facilitating first births, and experiments involving access to housing in Brazil show especially strong reproductive effects among young adults.

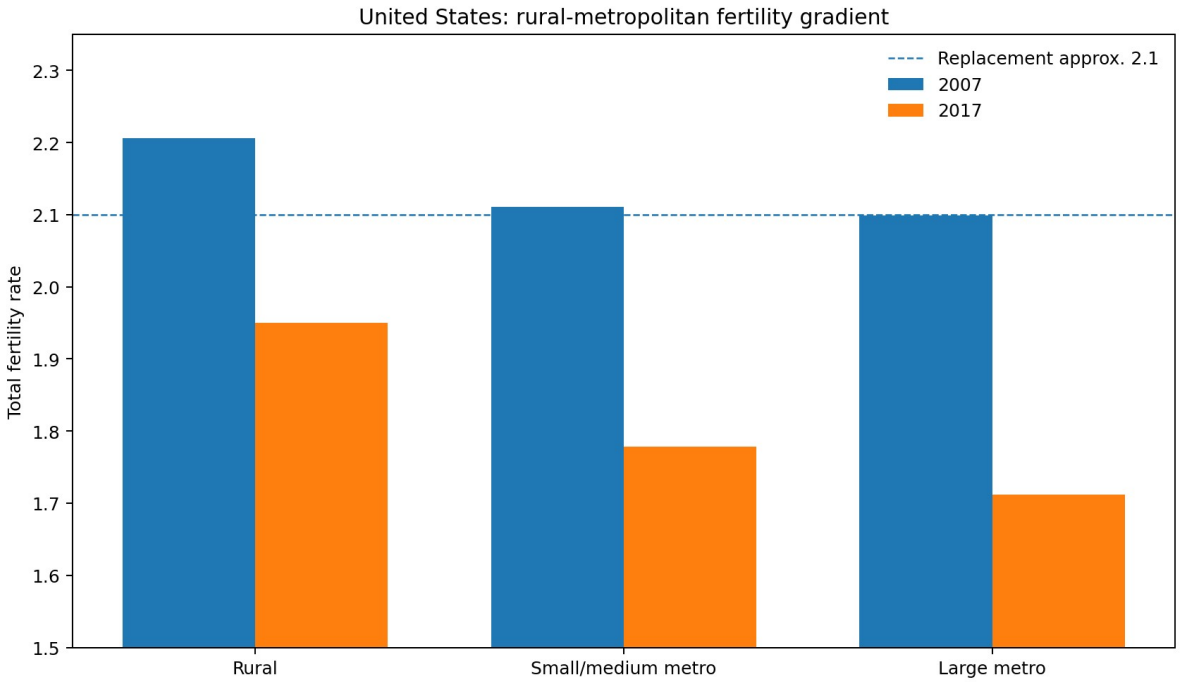

Figure 4. Total fertility rate by urbanization level in the United States, 2007 and 2017. Source: Ely and Hamilton (2018), NCHS/NVSS. Values are expected births per woman (the source reports them per 1,000 women).

7. From normal good to luxury good and, perhaps, status good

The intuition that children are becoming a luxury good requires conceptual precision. In microeconomics, a normal good is one whose demand increases with income; a luxury good has an income elasticity greater than one; a status or positional good additionally provides utility through the social signal associated with its consumption or possession. These are three distinct claims.

The contemporary literature provides reasonable support for the first: exogenous increases in resources can raise the probability of having children, and high-income households have recovered some of the relative fertility they lost during the twentieth century. Evidence is more limited for describing children as a “luxury good” in the technical sense, because effect sizes vary by age, sex, parity and context. And in the literature reviewed here, there is still insufficient evidence to claim that large families function causally as a status good.

The status hypothesis is nevertheless plausible and testable. In a metropolis where a third bedroom, childcare, schooling, transport and parental time are very expensive, a family with three or four children may convey information about wealth, stability, work flexibility or access to care networks. The cultural sign of the large family may reverse: from a signal of deprivation or lack of reproductive control to a signal of the capacity to sustain an expensive family project.

The thesis should be formulated gradually. First: test whether the income-fertility elasticity becomes positive. Second: test whether that elasticity rises with parity, especially for the third

and fourth child. Third: test whether the gradient increases with land prices and density. Only then would it make sense to investigate a symbolic component of status signaling, for example through survey experiments measuring how large families are perceived across different urban and economic contexts.

8. Housing, space and demographic compression

Housing is the piece that connects income with urban form. It is not merely an expenditure: it is the physical infrastructure of family reproduction. A household may want a child and have sufficient income for food and clothing, yet regard the transition as unviable if it requires changing neighborhoods, adding bedrooms, taking on a much larger mortgage or multiplying commuting and care burdens.

Using Finnish longitudinal registers, Kulu and Vikat (2007) find the highest fertility among couples living in single-family houses and the lowest among apartment residents, even after controlling for demographic and socioeconomic characteristics. An important part is explained by residential selection: couples planning children move beforehand. But the study also finds a relatively high risk of a third birth several years after moving to a single-family house, consistent with a persistent effect of spacious housing and a family-friendly environment.

The Brazilian evidence provides more causal identification. Van Doornik, Fazio, Ramadorai and Skrastins (2024) exploit lotteries for access to housing credit. Obtaining housing increases both the probability of having a child and the number of children; among participants aged 20-25, the effects are especially large. The impact is greater when residential constraints are severe, in low-quality housing and in areas with high rent burdens. The result is relevant because it partly separates selection: the timing of access to housing contains random variation.

Kondo (2019) approaches the problem through agglomeration. Using Japanese microdata, he estimates that a tenfold increase in city size/density is associated, holding other factors constant, with a substantial reduction in the number of children among young couples and with a delay in the first birth. Part of the differential is recovered with age, but a residual difference remains in completed fertility. The “congestion” mechanism is broader than housing: it includes commuting time, uncertain access to childcare, education costs and other costs correlated with large cities.

It is therefore useful to distinguish physical density from residential compression. A country’s national density is a poor measure for a specific couple. What matters is the effective environment: available square metres, number of bedrooms, price of an additional unit of space, tenure, municipality size, commuting time, service accessibility and proximity to family networks. A country may be dense and maintain high fertility if its institutions and beliefs compensate for those costs; it may be sparsely populated nationally while concentrating most young adults in extremely expensive metropolitan markets.

I therefore propose the concept of residential demographic compression: the set of constraints through which forming or expanding a family requires a disproportionate jump in housing, time

and logistics. The hypothesis is not that density is bad in itself, but that compression can turn reproduction into a form of consumption increasingly sensitive to income.

9. Rurality, metropolises and the U.S. laboratory

The United States is an especially useful laboratory because it combines high income levels with enormous variation in density, housing prices, urban form, religiosity and political culture. Official descriptive evidence already shows a gradient. Ely and Hamilton (2018) find that between 2007 and 2017 the TFR fell at every level of urbanization, but remained systematically higher in rural counties. In 2017 it was 1.95 in rural counties, 1.778 in small or medium metropolitan areas and 1.712 in large metropolitan areas. Age at first birth was also lower in rural areas, and the gap with large cities widened.

The gradient does not demonstrate causality. Rural areas differ in racial composition, education, religion, marriage, immigration and residential selection. Moreover, rurality and low density are not equivalent to economic abundance: many rural areas are poor. This is precisely why the next step is to study interactions rather than simple averages.

The central question proposed by this paper is: among households with similar family preferences, is the effect of income on fertility greater in a large metropolis than in a rural area? If a house suitable for three children is relatively cheap in a small town, both a middle-income and a high-income family may be able to afford it. In a dense metropolis, moving to a three- or four-bedroom dwelling may be prohibitively expensive for the middle class and trivial for the elite. The same income difference then produces a larger reproductive difference.

This is the urban amplification hypothesis. It does not necessarily predict that fertility among rich urban households will exceed that of rich rural households; it predicts that the gradient within the urban environment - the reproductive difference between low- and high-income households - will be steeper where family space is scarce and expensive.

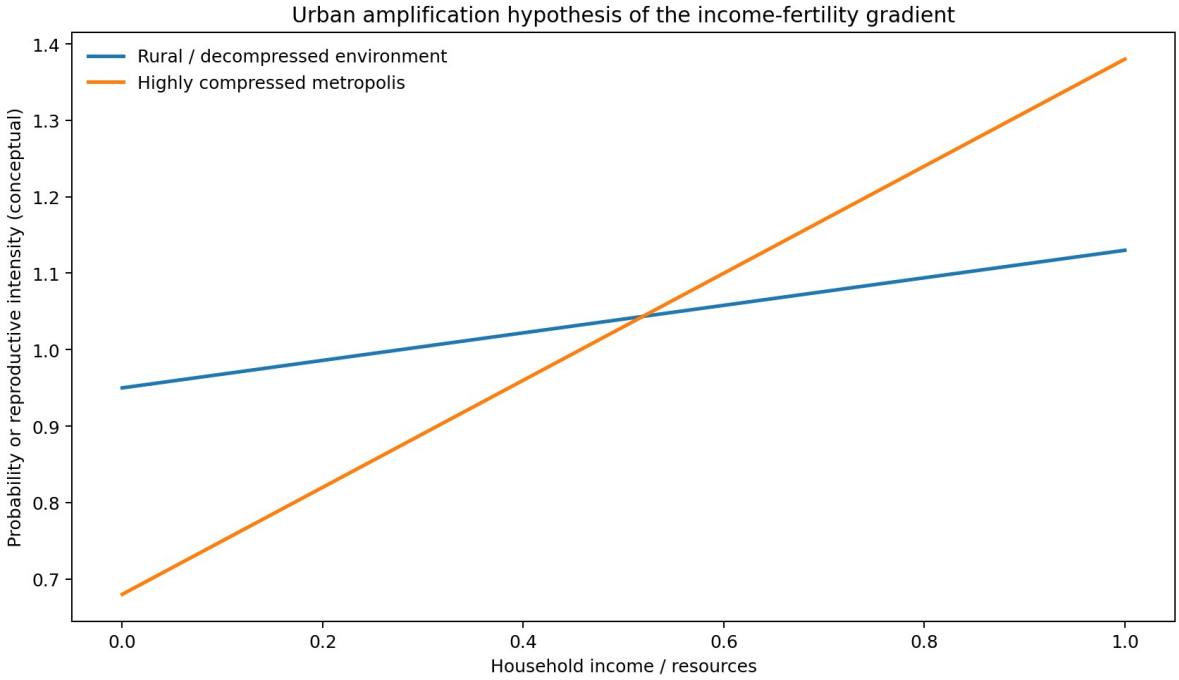

Figure 5. Urban amplification hypothesis. Conceptual scheme: the income-fertility gradient would be steeper in residentially compressed environments. This is not an empirical estimate.

An additional implication concerns mediation. If higher income raises urban fertility mainly because it permits the purchase of space, then adding housing variables - bedrooms, units in structure, rent, mortgage cost, overcrowding, ownership - should reduce the income coefficient. If it does not, other channels must be sought: partnership stability, care services, health, work flexibility or preferences.

10. Beliefs, religion, ideology and continuity

A purely material theory also fails to explain all the variation. Israel is the most important counterexample to the claim that wealth, urbanization and density necessarily lead to ultra-low fertility. Israel's Central Bureau of Statistics placed the TFR at around 2.9 in recent data, far above the OECD average. Fernández-Villaverde and Norrick describe it as the clear exception among advanced economies and emphasize that Jewish fertility has remained high even outside ultra-Orthodox groups.

International and U.S. evidence supports a relationship between religiosity and fertility, although mechanisms include selection, marriage and family norms. Hayford and Morgan (2008) show that denominational label alone is not enough: the subjective importance of religion and religious participation matter. Longitudinal studies and European registers also find persistent differences by affiliation and practice.

The relationship with political ideology requires equally cautious formulation. Using the General Social Survey, Vogl and Freese (2020) find that individuals with higher fertility and their descendants are more conservative on "family values" issues, especially abortion and same-sex

marriage. The pattern is linked to religiosity and education and does not imply that every dimension of conservatism causes higher fertility. But it does demonstrate that differential reproduction can alter the ideological composition of future generations.

“National belief,” or an explicit will for collective continuity, is much less clearly identified empirically. It may be relevant in Israel or in minority communities with a strong consciousness of continuity, but it is usually intertwined with religion, endogamy, conflict, family policy and community structures. In this paper it should be classified as an open hypothesis, not as an established result.

Conceptually, beliefs act on the demand for children, while resources and space act on the capacity to realize it. This helps explain why the same costs produce different outcomes. A couple with a strong preference for three children may accept sacrifices that another would not; a community may organize care, housing and transfers in ways that reduce effective costs; and a rich household may turn moderate preferences into actual births through greater material capacity.

11. An integrated framework: resources × space × beliefs

The literature often presents mechanisms as alternatives: income, housing, gender, norms, religion, childcare. This paper proposes treating them as complementary dimensions. Realized fertility depends on at least three distinct questions:

- Is the child desired? - preferences, religion, family values, continuity, life expectations.
- Can the household afford it? - income, wealth, employment, stability, capacity to purchase care and services.
- Can the child fit materially into household life? - housing, bedrooms, density, transport, time, childcare, family networks.

The formulation “resources × space × beliefs” does not imply literal multiplication. It indicates complementarity. If one dimension is extremely restrictive, it can block the others. A high-resource household with no desire for children will have low fertility; a pronatalist household without resources may fail to realize its preference; a household with resources and desire may postpone if suitable housing is inaccessible.

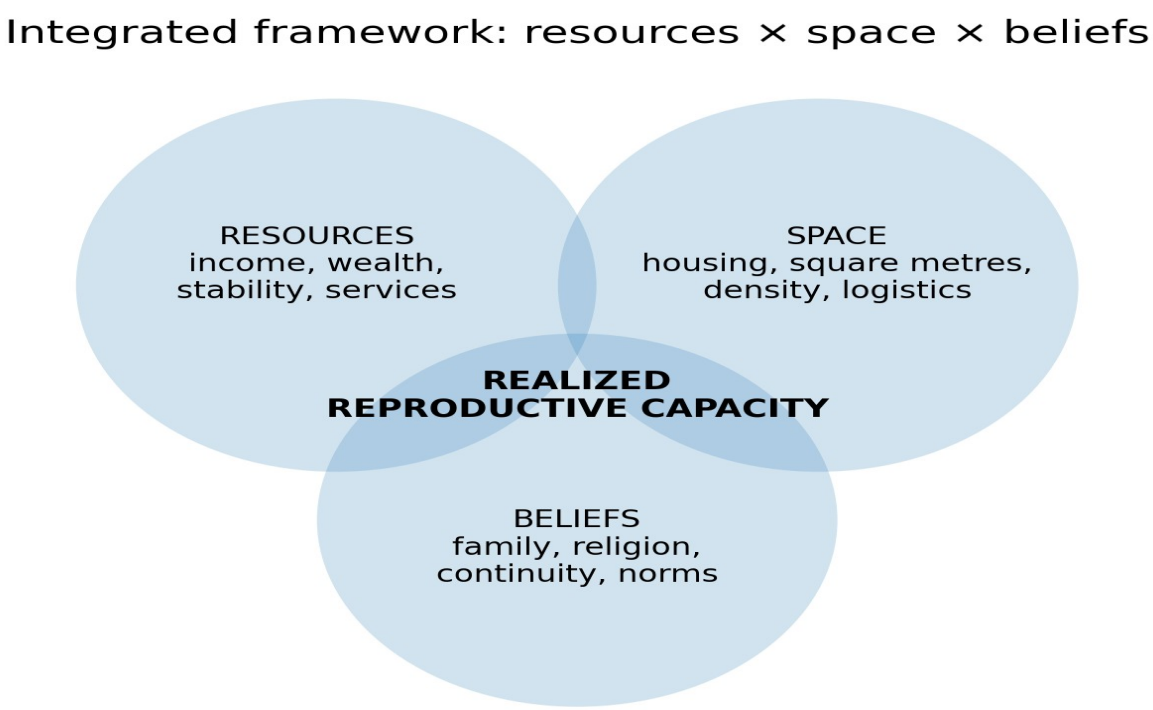

Figure 6. Integrated conceptual framework. Realized fertility emerges from the interaction between resources, space and beliefs; no single dimension exhausts the phenomenon.

This complementarity also helps reconcile apparently contradictory findings. In markets where housing is cheap, the marginal effect of income may be small. Where housing is expensive, income may be decisive. In religious groups that organize community support, the negative effect of density or cost may be smaller. Among high-income households, the marketization of care may reduce the time cost; among low-income households, the same service market may be inaccessible.

The model suggests that modernity is not a homogeneous treatment. There may be a compressed modernity - high density, small housing, rigid careers, competitive education and weak family networks - and a more decompressed modernity - more space, residential mobility and accessible family housing. Both may remain below replacement, but not necessarily at the same equilibrium.

12. Testable hypotheses

The review supports the formulation of hypotheses that should not be confused with facts already demonstrated:

H1. Second status reversal. In very-low-fertility societies, the income-fertility gradient will tend to be less negative or positive, especially at the margin of the first birth.

H2. Urban amplification. The positive income-fertility gradient will be steeper the greater the effective density, cost of family housing or residential compression.

H3. Residential mediation. Part of the positive effect of income in urban areas will diminish after controlling for bedrooms, floor area, housing type, tenure and housing burden.

H4. Parity sensitivity. Residential space will have an especially strong effect on the transition to a third child, because that birth more often requires a jump in housing category.

H5. Flatter rural gradient. Among rural households or those facing low compression, fertility differences between rich and poor will be smaller than in large cities, after controlling for age, education, marriage and religion.

H6. Beliefs as a compensating factor. Religiosity and strong family values will reduce the sensitivity of fertility to some material constraints, although they will not necessarily eliminate them.

H7. Resources-beliefs interaction. Resources will translate more strongly into births where there is a prior preference for children; a wealth shock should raise fertility more among people with unmet family-size desires.

H8. Large family as a status signal. In extremely expensive urban markets, the social perception of a family with three or more children will be more strongly associated with status and economic capacity than in rural settings. This is the most open hypothesis in the set.

13. Evidence map: what we know and what remains to be demonstrated

Proposition	Evidence	Main basis	Caution
High fertility among elites before the transition	A	Skirbekk 2008; multiple historical evidence	Not universal; “status” changes meaning.
First reversal toward a negative gradient	A	Skirbekk 2008; Jones & Tertilt 2008	Education, income and occupation are not equivalent.
Global decline and spread to middle-income countries	A/B	UN 2025; Fernández-Villaverde & Norrick 2026	Recent measurement is uneven in countries with weak registration systems.
Income-fertility relationship becomes more positive in rich countries	A/B	Doepke et al. 2023; Bar et al. 2018; van Wijk 2024	Strong heterogeneity by sex and parity.
Access to housing	A/B	Van Doornik et al.	Effect depends on age

increases fertility		2024; Kulu & Vikat 2007	and residential selection.
Density/ agglomeration reduces or delays fertility	B	Kondo 2019; Ely & Hamilton 2018	Part may reflect resident selection.
Religiosity/family values associated with higher fertility	A/B	Hayford & Morgan 2008; Vogl & Freese 2020; Israel CBS	Causality and intergenerational transmission are complex.
Income-fertility gradient stronger in dense cities	C	Hypothesis of this paper	Requires explicit income × density/space interaction.
Large family as a status good	C	Hypothesis of this paper	Distinguish status signaling from simple capacity to pay.
National identity as an autonomous pronatalist factor	C	Compatible with some cases	Difficult to separate from religion, conflict and institutions.

Table 1. Synthetic classification of the evidence. A = robust or widely replicated; B = suggestive/contextual; C = open hypothesis.

14. Empirical agenda: how to test the hypotheses

The United States permits a particularly powerful strategy because the American Community Survey provides annual microdata with a variable identifying whether a woman aged 15 to 50 gave birth in the previous twelve months, together with income, education, employment, marital status and numerous housing characteristics: bedrooms, rooms, units in the structure, rent, value, owner costs, vehicles and occupants per room. NVSS vital statistics can complement these microdata with age- and geography-specific rates.

A first design could estimate, for women aged 20-44, the probability of a recent birth:

$$\mathbf{Pr(Birth_{it} = 1) = logit^{-1}[\ \alpha + \beta_1\ Income_{it} + \beta_2\ Density_{jt} + \beta_3\ Housing_{it} + \beta_4\ BeliefProxy_{jt} + \beta_5(Income \times Density) + X_{it}\Gamma + \mu_j + \tau_t\ ]}$$

The crucial variable is β_5. The urban amplification hypothesis predicts $\beta_5 > 0$ when greater density or compression makes resources purchase a larger share of reproductive capacity. Because the ACS does not measure religiosity, territorial analyses would need to be combined

with the General Social Survey, Cooperative Election Study or other surveys for the beliefs dimension, or local religious composition could be used with ecological caution.

The analysis should be decomposed by parity whenever the data permit. For the first child, the question is entry into parenthood; for the second, continuation; for the third, capacity to expand the family. Housing mechanisms probably differ. Kulu and Vikat suggest that the third birth deserves specific attention, while van Wijk shows that the new Dutch income gradient is driven mainly by first births.

It would also be useful to exploit temporal variation in housing prices and supply. A difference-in-differences design around zoning reforms, large expansions of family housing or credit shocks could show whether the fertility gradient changes especially across income groups. The ideal identification strategy would not ask only “does housing affect fertility?” but “does housing explain why income affects fertility more in some places than in others?”

Testing the status hypothesis would require a different module. A vignette experiment could present equivalent households differing in number of children and location - downtown Manhattan versus a small town, for example - and ask respondents about perceived wealth, success, stability, religiosity and status. If the large family functions as a positional signal, the effect of number of children on perceived status should be greater in expensive urban markets even after explicitly controlling for stated income.

15. Implications for economics, urban planning and demographic sustainability

If the framework is correct, part of the fertility crisis cannot be addressed solely through marginal cash transfers. The problem is not only the “price” of a child in the narrow sense, but the material architecture of family life. A benefit of a few thousand euros may have little effect if a third child requires moving from a two-bedroom apartment to a dwelling that costs hundreds of thousands more, or if working hours and transport make care impossible.

This does not imply that universal low density is the solution. Cities generate productivity, innovation, culture and economies of scale. The question is whether urban planning produces enough family housing, typological variety, access to space, childcare and time structures compatible with reproduction. A housing policy that multiplies studios and one-bedroom apartments may expand total supply while failing to relax the specific constraint faced by a family that wants a second or third child.

Nor is it enough to say that more income will solve the problem. East Asian economies show that very rich societies can sustain ultra-low fertility. Fernández-Villaverde and Norrick point to factors such as competitive education, gender norms and housing; Kondo documents agglomeration costs; and the evidence on religion shows that preferences and norms remain relevant. Modernity can be rich and, at the same time, demographically hostile.

From the perspective of sustainability, this introduces an important distinction. A society can be economically productive and increasingly ecologically efficient while being demographically incapable of replacing itself. In previous work, Gatnau (2026a, 2026b) formulated this tension in terms of demographic sustainability and proposed that a more spatially decompressed residential structure may form part of the solution. The present paper does not demonstrate that solution; it seeks to isolate the mechanism that should be tested empirically: whether space and urban form explain a significant part of reproductive differences within modernity.

Any policy implication must respect an additional constraint: fertility is an intimate decision and cannot be reduced to an administrative target. The legitimate public interest lies in removing obstacles, not imposing outcomes. Accessible housing, work-family compatibility, information, reproductive health and institutional neutrality toward those who wish to have children are different from coercive pronatalism.

16. Relationship with the modernity conjecture and previous work

The relationship with Fernández-Villaverde and Norrick (2026) is one of continuity, not substitution. Terra Incognita asks why fertility is falling almost everywhere and concludes that the usual mechanisms do not by themselves explain the global pattern. Their conjecture is that modernity itself makes the third child expensive and childlessness cheap. This paper accepts that conjecture as a possible starting point and asks the next question: if modernity pushes fertility downward, what determines the depth of the decline and the exceptions?

The proposed answer is that “modernity” must be decomposed. Two equally modern countries may differ in residential space, housing structure, family networks, care markets, religiosity, partnership norms and values of continuity. Aggregate income does not capture these dimensions. A compressed modernity may produce a much lower reproductive equilibrium than a modernity whose spatial structure is family-friendly, even when both remain below replacement.

This idea also connects with two previous works by the author. Generations to Extinction (Gatnau, 2026a) focuses on the arithmetic of maintaining a generational multiplier below one and on the distinction between population stock and trajectory. The 1, 3⅓, 10, 13 and 33 Conjecture (Gatnau, 2026b) formulates an extreme scenario of global convergence toward a TFR close to 1. The present paper serves a different function: it does not calculate the destination implied by a given TFR, but investigates which factors may explain dispersion around the fertility levels of modernity.

Autosustainables for Global Sustainability (Gatnau, 2026c) had already argued that ecological and demographic sustainability may come into tension and proposed recovering space and family autonomy through a form of networked de-urbanization. Here that intuition becomes a more delimited empirical hypothesis: urban compression should amplify the income gradient, and access to suitable housing should mediate part of realized fertility.

17. Conclusion

Fertility does not have a stable relationship with status. History appears to show at least two major reversals. Before the demographic transition, wealth and position were often associated with more descendants. During the transition, elites limited fertility earlier and the image of the large family as a marker of lower status became consolidated. In late modernity, that relationship is changing again: higher income is associated in some contexts with a greater probability of becoming a parent, the reproductive penalty of higher education is weakening, and lower-resource groups are participating intensely in the recent fertility decline.

The change should not be interpreted as a simple return to the past. The mechanisms are different. The rich premodern family had more children because it controlled productive and social resources. The rich modern family may have more children because it can buy time, housing, care, flexibility and security in a system that has made reproduction expensive. It is a second reversal under a different social technology.

Housing and space emerge as central candidates for explaining why this reversal is not equally strong everywhere. The available evidence shows strong associations between single-family housing and fertility, causal effects of access to housing in Brazil, reproductive delays in large Japanese cities and a persistent rural-metropolitan gradient in the United States. But a direct test is still missing for this paper's more specific hypothesis: that income inequality translates into greater reproductive inequality the greater the degree of residential compression.

Beliefs complete the framework. Israel shows that wealth and density do not by themselves produce ultra-low fertility. Religiosity and family values are associated with higher fertility in numerous studies, and differential reproduction can change the ideological composition of society. Demographic continuity therefore depends on both capacity and desire.

The synthesis can be expressed in one sentence: in late modernity, having children may be ceasing to be primarily a consequence of failing to limit reproduction and becoming instead a project that requires wanting, being able to pay, and being able to accommodate. If this transformation continues, fertility will become increasingly stratified. Understanding that stratification - and not only the national average number of children per woman - may be one of the keys to explaining why some societies approach one child per woman while others remain substantially above it.

References

Bar, M., Hazan, M., Leukhina, O., Weiss, D., & Zoabi, H. (2018). Why did rich families increase their fertility? Inequality and marketization of child care. Journal of Economic Growth, 23(4), 427-463. DOI: 10.1007/s10887-018-9160-8.

Becker, G. S. (1960). An economic analysis of fertility. In Demographic and Economic Change in Developed Countries. Princeton University Press/NBER.

Becker, G. S., & Lewis, H. G. (1973). On the interaction between the quantity and quality of children. Journal of Political Economy, 81(2), S279-S288.

Chesnais, J.-C. (1992). The Demographic Transition: Stages, Patterns, and Economic Implications. Oxford University Press.

Coale, A. J., & Watkins, S. C. (Eds.). (1986). The Decline of Fertility in Europe. Princeton University Press.

Doepke, M., Hannusch, A., Kindermann, F., & Tertilt, M. (2023). The economics of fertility: A new era. In Handbook of the Economics of the Family, Vol. 1, 151-254.

Ely, D. M., & Hamilton, B. E. (2018). Trends in fertility and mother's age at first birth among rural and metropolitan counties: United States, 2007-2017. NCHS Data Brief No. 323.

Eurostat. (2026). Fertility statistics: 2024 data. Statistics Explained.

Fernández-Villaverde, J., & Norrick, P. (2026). Terra Incognita: The Economics of a Shrinking World. Annual Review of Economics, forthcoming. DOI: 10.1146/annurev-economics-081026-024323.

Gatnau, X. (2026a). Generations to Extinction: A manifesto about replacement, compounding, and the quiet violence of exponential decline. Manuscript.

Gatnau, X. (2026b). The 1, 3⅓, 10, 13 and 33 Conjecture: a hypothesis on global fertility convergence and the 1,000 years to extinction. Manuscript.

Gatnau, X. (2026c). Autosustainables for Global Sustainability: technical justification for networked de-urbanization toward an ecologically and demographically self-sustaining humanity. Manuscript.

Hayford, S. R., & Morgan, S. P. (2008). Religiosity and fertility in the United States: The role of fertility intentions. Social Forces, 86(3), 1163-1188.

Hazan, M., Weiss, D., & Zoabi, H. (2023). Highly educated women are no longer childless: The role of marketization. Economics Letters, 230, 111226.

Jones, L. E., & Tertilt, M. (2008). An economic history of fertility in the U.S.: 1826-1960. In Frontiers of Family Economics, Vol. 1. Emerald. NBER Working Paper 12796.

Kondo, K. (2019). Does agglomeration discourage fertility? Evidence from the Japanese General Social Survey 2000-2010. Journal of Economic Geography, 19(3), 677-704.

Kulu, H., & Vikat, A. (2007). Fertility differences by housing type: The effect of housing conditions or of selective moves? Demographic Research, 17, 775-802. DOI: 10.4054/DemRes.2007.17.26.

National Center for Health Statistics. (2026). Births: Final Data for 2024. National Vital Statistics Reports.

Skirbekk, V. (2008). Fertility trends by social status. Demographic Research, 18, 145-180. DOI: 10.4054/DemRes.2008.18.5.

United Nations, Department of Economic and Social Affairs, Population Division. (2025). World Fertility 2024.

Van Doornik, B., Fazio, D., Ramadorai, T., & Skrastins, J. (2024). Housing and Fertility. Banco Central do Brasil Working Paper 612 / CEPR Discussion Paper 19805.

van Wijk, D. (2024). Higher incomes are increasingly associated with higher fertility: Evidence from the Netherlands, 2008-2022. Demographic Research, 51, 809-822. DOI: 10.4054/DemRes.2024.51.26.

Vogl, T. S., & Freese, J. (2020). Differential fertility makes society more conservative on family values. Proceedings of the National Academy of Sciences, 117(14), 7696-7701. DOI: 10.1073/pnas.1918006117.

Final methodological note: several 2025-2026 figures cited by Fernández-Villaverde and Norrick come from recent official statistics or from the authors' own estimates. When this paper reproduces them, it does so as part of the evidence presented in Terra Incognita, not as an independent estimate. The hypotheses termed "urban amplification," "residential demographic compression," and "large family as a status signal" are proposals of this paper and are not presented as already established findings.